CLAIMS

What is claimed is:

1. An acoustic transducer comprising:
a sheet of diaphragm material folded into portions comprising:
a substantially planar portion, and
at least one fin portion; and
a voice coil mounted on the fin portion.

2. The acoustic transducer of claim 1, further comprising:
a magnet;
a voice coil mounted on the fin portion and immersed in a magnetic field from the magnet.

3. The low-profile transducer of claim 1, where a 90° fold in the sheet of diaphragm material is adjacent to a 180° fold in the sheet of diaphragm material.

4. The low-profile transducer of claim 1, where two 90° folds in the sheet of diaphragm material are adjacent to a 180° fold in the sheet of diaphragm material.

5. The low-profile transducer of claim 1, where a first 90° fold in the sheet of diaphragm material is adjacent to a second 90° fold and the second 90° fold is adjacent to a 180° fold in the sheet of diaphragm material.

6. The acoustic transducer of claim 1, where the sheet of diaphragm material is a sheet of electrically non-conductive material.

7. The acoustic transducer of claim 1, where the sheet of diaphragm material comprises a sheet of electrically non-conductive material to which is bonded a conductive trace for the voice coil.

8. The acoustic transducer of claim 1, where the sheet of diaphragm material comprises a sheet of electrically conductive material.

9. The acoustic transducer of claim 1, where the sheet of diaphragm material comprises a polymer material.

10. The acoustic transducer of claim 1, where the sheet of diaphragm material is a sheet of polyethylenenaphthalate material.

11. The acoustic transducer of claim 1, where the sheet of diaphragm material is a sheet of polyester material.

12. The acoustic transducer of claim 1, where the sheet of diaphragm material is a sheet of MYLAR.

13. An acoustic transducer comprising:

a frame;

a sheet of diaphragm material folded into portions comprising:

a planar surface portion,

a side portion connected to the surface portion, and

a fin portion;

a voice coil mounted on the fin portion.

a connection between the side portion of the diaphragm and the frame;

where the connection joins the side portion of the diaphragm at points outside a plane of the surface portion of the diaphragm.

14. The acoustic transducer of claim 13, where the diaphragm has a center of mass, and where the connection is attached to the side portion of the diaphragm at locations that are substantially coplanar with the center of mass.

15. The acoustic transducer of claim 13, where the connection is a pliable surround.

16. The acoustic transducer of claim 13, where the connection is formed at three points on the side portion of the diaphragm.

17. A low-profile transducer comprising:

a frame;

a sheet of diaphragm material folded into portions comprising:

a planar surface portion, and

a fin portion;

a voice coil mounted on the fin portion;

a magnet structure mounted on the frame, where the magnet structure produces a magnetic-field region; and

an electrically conductive voice coil coupled to the diaphragm and extending out of a plane of the projection surface;

where the voice coil resides at least partially in the magnetic-field region.

18. The low-profile transducer of claim 17, where the connection is a pliable surround.

19. The low-profile transducer of claim 17, where the voice coil is mounted on the fin.

20. The low-profile transducer of claim 19, where the fin extends in a direction substantially perpendicular to the projection surface.

21. The low-profile transducer of claim 17, where the frame comprises a ferromagnetic material.

22. The low-profile transducer of claim 17, where the frame comprises a ferromagnetic material, and where the frame provides a return path for a magnetic field generated by the magnet structure.

23. The low-profile transducer of claim 17,

where the frame comprises a ferromagnetic material,

where the magnet structure comprises a magnet and a portion of the frame, and

where the magnetic-field region is formed between the magnet and the portion of the frame.

24. The low-profile transducer of claim 17, where the frame is non-ferromagnetic.

25. The low-profile transducer of claim 17, where the frame is non-ferromagnetic and where the magnet structure comprises a magnet and a ferromagnetic material.

26. The low-profile transducer of claim 17, where the frame has a substantially crenellated shape.

27. The low-profile transducer of claim 17, where the frame includes a groove.

28. The low-profile transducer of claim 17, where the projection surface of the diaphragm is in the shape of a rectangle.

29. The low-profile transducer of claim 17, further comprising a filler material attached to the projection surface, and a second sheet of material attached to the filler material, where the filler material and the second sheet provide additional rigidity to the projection surface.

30. The low-profile transducer of claim 17, further comprising a second sheet of material attached to the projection surface.

31. The low-profile transducer of claim 17, where the frame comprises a groove, and where the magnet structure is adjacent to the groove.

32. The low-profile transducer of claim 17, where the voice coil comprises an insulated metal wire.

33. A loudspeaker comprising the low-profile transducer of claim 17.

34. The loudspeaker of claim 33, further comprising at least one cone-type transducer.